

1. IDENTIFICATION OF PREPARATION & OF COMPANY

Product: Epoxy Vinyl Ester Resin
Manufacturer: Chemco International Ltd
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2. COMPOSITION INFORMATION ON INGREDIENTS

Brominated epoxy vinyl ester resin in styrene.

Chemicals	Classification	Risk phrases
Styrene monomer	Xi, Xn	R10, R20, R36/38

3. HAZARDS IDENTIFICATION

Acute effects: Flammable. Harmful by inhalation. Irritating to eyes and skin.

4. FIRST AID MEASURES

Inhalation: Move to fresh air if effects occur. Seek medical attention.
Ingestion: Immediately give plenty of water (if possible charcoal slurry).
Seek medical attention immediately. Do not induce vomiting.
Fully trained personnel can use oxygen or artificial respiration
if required.
Eyes: Rinse with flowing water immediately for at least 15 minutes.
Seek medical attention.
Skin: Remove contaminated clothing. Flush with flowing water for
at least 15 minutes. Wash affected area with soap and water.
Seek medical attention if irritation persists.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Carbon dioxide, dry chemical powders, foam.
Specific fire or explosion hazards: Flammable product.
Hazardous combustion products: Under conditions of incomplete combustion or pyrolysis,
phenolics and/or brominated compounds, e.g. hydrogen
bromide, may be evolved. The thermal decomposition
products therefore should be treated as potentially hazardous
substances and appropriate precautions should be taken.
Special protective equipment: Wear positive pressure, self-contained breathing apparatus
and protective fire-fighting clothing (helmet, coat, trousers,
boots and gloves).
Specific methods of fire-fighting: Solvents may produce excessive pressure under fire
conditions. Sealed containers may rupture and ignite. Cool
containers in the vicinity of the blaze using a water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal protection:	Move unprotected personnel upwind to a clear area. Wear adequate personal protective equipment. Treat as a flammable liquid, keep heat, flame or spark producing equipment away.
Environmental precautions:	Prevent from entering into soil, waterways and ground water. Flushing and wash waters must be confined and prevented from entering into soil, waterways and ground water. Contain large spills with a dike.
Methods for cleaning up:	Soak up spills with absorbent material such as sand or vermiculite and collect as much as possible in a suitable container. Solvents are not recommended for clean-up unless the recommended exposure guidelines and safe handling practices for the specific solvent are followed. Residue resin may be removed using steam or hot soapy water. Do not empty into drains.
Additional information:	Vapours are heavier than air and may travel considerable distance and accumulate in low lying areas. Ignition and/or flash back may occur.

7. HANDLING & STORAGE

Handling:	Practice care and caution to avoid skin and eye contact. Avoid breathing vapours.
Storage:	Ground and bond all equipment. Store containers tightly closed in a well ventilated area. Do not expose to direct sunlight. Keep temperature below 25°C (Polymerisation may be initiated at a resin temperature of > 28°C). If product is re-aerated it must not exceed 30°C to avoid approaching the lower explosion limit (LEL) for styrene in the headspace.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls:	Provide general and/or local exhaust ventilation to control airborne concentrations below the recommended exposure guideline.
Exposure limits: Respiratory:	Maximum: LTEL = 100ppm. STEL = 250ppm. Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required, selection of air-purifying or positive pressure supplied air will depend on the specific operation and the potential airborne concentration of the material.
Eye protection:	Use chemical goggles. If vapour exposure causes eye irritation, use a full-face respirator. Eye wash fountain should be located in immediate work area.
Skin protection:	For brief contact no precautions other than clean body covering clothing should be needed. Selection of specific items such as gloves, boots, aprons or full body suit will depend on operation. When prolonged or frequently repeated contact could occur, use protective clothing impervious to this material.

9. PHYSICAL & CHEMICAL PROPERTIES

Physical state:	Viscous liquid.
Colour:	Yellow.
Odour:	Pungent styrene odour.
Flash point:	35°C (ASTM D 3278-82).
Specific gravity:	1.00 - 1.255
Flammability:	L.F.L. 1.1°C (styrene). U.F.L. 6.10°C (styrene).
Auto-ignition temperature:	490°C (styrene).
Relative vapour density:	3.6 (styrene).
Water solubility:	25°C insoluble.
Vapour pressure:	5mm Hg. 21°C (styrene).

10. STABILITY & REACTIVITY

Stability:	Stable under normal storage conditions.
Conditions to avoid:	Avoid ignition sources, i.e. flames or spark producing equipment. Solvent may cause high pressure build-up under excessive heat in closed containers.
Materials to avoid:	Oxidising agents, metallic halides (salts) e.g. ferric and aluminium chlorides, peroxides.

11. TOXICOLOGICAL INFORMATION

Acute toxicity	
Ingestion:	
Oral LD50:	>4,000mg/kg. (rat).
Skin LD50:	>2,000mg/kg. (rabbit).
Irritation	
Skin:	Irritating.
Eyes:	Irritating.

12. ECOLOGICAL INFORMATION

Of the ingredients in this preparation, environmental impact is expected to be particularly influenced by the solvents.

Mobility and bioaccumulation potential:	
Resin:	Partitioning from water to octanol not applicable.
Solvent:	Log octanol/water partition coefficient (log Pow) = 2.95
Bio concentration factor:	Fish = 13.5 Potential for mobility in soil low (POC between 500 and 2000).
Degradation:	
Resin:	Biodegradation under aerobic conditions below detectable limits.
Solvent:	Biodegradation reached in closed bottle test after 20 days > 54%. Material is expected to pass closed bottle test for ready biodegradability in 28 days. Biodegradation may increase in soil and/or water with acclimation.

12. ECOLOGICAL INFORMATION (cont'd)

Aquatic toxicity:
Solvent: Acute LC50 (fathead minnow - pimphales promelas)
46.4 - 59.3mg/l
Acute LC50: Water flea - daphnia magna -23mg/l. Material is harmful
to aquatic organisms (LC50/EC50/IC50 10 - 100mg/l).

13. DISPOSAL CONSIDERATIONS

Product: Must be incinerated when in compliance with local
regulations.
Contaminated packaging: Can be re-used after cleaning when in compliance with
the Environmental Protection (Duty of Care) Regulations
1991. Dispose of washing solution in the same way as
product.

14. TRANSPORT INFORMATION

Proper shipping name: Resin solution

Road, Rail & Barge
ADR/RID Loaded: 3-31 c Empty: 3-71 Label: 3
Barge - ADNR Loaded: 3-31c Empty: 3-71 Label: 3
Kemler Code: 30 PENOS Code: S
UN No: UN 1866 Trem Card No: 677B

Sea
IMO/IMDG Class: 3.3 Label: 3
EMS: 3-05 MFAG: 310
Container Type: 2 Marine Pollutant: Yes
UN No: UN 1866 Packing Group: III

Air
IATA/ICAO Class: 3 Packaging Group: III
UN No: UN 1866
Packaging Instruction (Pass & Cargo): 309 Packaging Instruction (Cargo): 310

15. REGULATORY INFORMATION

Chemical name: Contains styrene.
Labelling: According to EEC directives relating to packaging and
labelling of dangerous substances and UK Chemicals
Hazard Information and Packaging for Supply (CHIPS)
legislation.
(Xi) Irritant.
Symbols: (Xn) Harmful.
Risk phrases: R10, Flammable.
R20, Harmful by inhalation.
R36/38, Irritating to eyes and skin.
Safety phrases: S23, Do not breathe vapours.
S51, Use only in well ventilated areas.

16. OTHER INFORMATION

The information contained in this data sheet is based on present state of knowledge and current national legislation (CHIPS). It provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for the particular applications.